

## CLAIMS (TI-35514/35495)

What is claimed is:

1. A method of transcoding, comprising:

- (a) receiving encoded motion-compensated video including motion vectors and frame-DCT blocks;
- (b) downsampling said blocks as:
  - (i) for an I-picture or P-picture DCT block, applying a two-dimensional inverse discrete cosine transform (IDCT) and then applying a downsampling with respect to the horizontal dimension;
  - (ii) for a B-picture DCT block, applying a one-dimensional de-interlacing IDCT with respect to the vertical dimension of said block and then applying a one-dimensional IDCT and a downsampling with respect to the horizontal dimension;
- (c) applying inverse motion compensation from results from step (b);
- (d) after step (c), applying a downsampling with respect to the vertical dimension for the results of step (b)(i);
- (e) repeating steps (a)-(d) for further DCT blocks and motion vectors;
- (f) encoding the results of step (e).

2. The method of claim 1, wherein:

- (a) said inverse motion compensation of step (c) of claim 1 includes re-use of said motion vectors.

3. The method of claim 1, wherein:

- (a) said inverse motion compensation of step (c) of claim 1 includes use of a field of the results of step (b)(i).

4. The method of claim 1, wherein:

- (a) said encoding of step (f) of claim 1 includes re-use of said motion vectors.

5. The method of claim 1, wherein:

- (a) said received pictures are encoded with variable-length coding; and
- (b) prior to said downsampling of step (b) of claim 1, applying variable-length decoding.

6. A method of transcoding, comprising:

- (a) receiving encoded motion-compensated video including motion vectors and frame-DCT blocks;
- (b) downsampling said blocks as:
  - (i) for an I-picture or P-picture DCT block, applying a two-dimensional inverse discrete cosine transform (IDCT) and then applying a downsampling with respect to the horizontal dimension;
  - (ii) for a B-picture DCT block, applying a one-dimensional de-interlacing IDCT with respect to the row dimension of said block and applying a one-dimensional de-interlacing IDCT with respect to the column dimension;
- (c) applying inverse motion compensation for results from step (b);
- (d) after step (c), applying a downsampling with respect to the vertical dimension for the results of step (b)(i);
- (e) repeating steps (a)-(d) for further DCT blocks and motion vectors;
- (f) encoding the results of step (e).

7. The method of claim 6, wherein:

- (a) said inverse motion compensation of step (c) of claim 1 includes re-use of said motion vectors.

8 The method of claim 6, wherein:

- (a) said inverse motion compensation of step (c) of claim 1 includes use of a field of the results of step (b)(i).

9. The method of claim 6, wherein:

- (a) said encoding of step (f) of claim 1 includes re-use of said motion vectors.

10. The method of claim 1, wherein:

- (a) said received pictures are encoded with variable-length coding; and
- (b) prior to said downsampling of step (b) of claim 1, applying variable-length decoding.